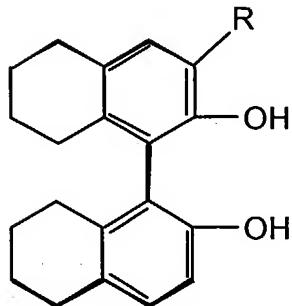


WHAT IS CLAIMED IS:

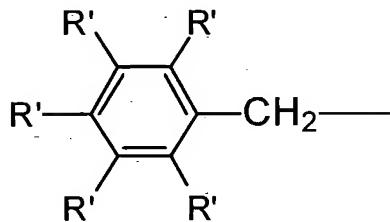
5 1. A compound of the formula



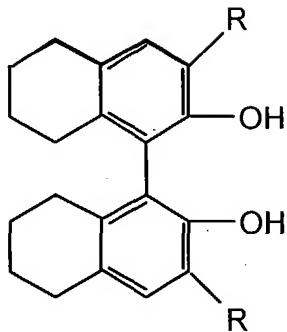
1

wherein:

10 R is C₁ to C₂₀ alkyl, C₃ to C₂₀ cycloalkyl, or benzyl of the formula.



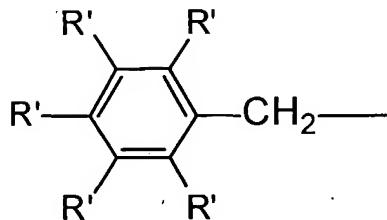
15 wherein each R' is independently H, alkyl or cycloalkyl of up to 6 carbons; and/or a compound of the formula



2

wherein R is C₁ to C₂₀ alkyl other than methyl or t-butyl, C₃ to C₂₀ cycloalkyl, or benzyl of the formula

5



wherein each R' is independently H, alkyl or cycloalkyl of up to 6 carbons.

10

2. A process for making 3-alkylated-5,5',6,6',7,7',8,8'-octahydro-2,2'-binaphthol and/or 3,3'-dialkylated-5,5',6,6',7,7',8,8'-octahydro-2,2'-binaphthol, comprising contacting 5,5',6,6',7,7',8,8'-octahydro-2,2'-binaphthol with at least one alkene or cycloalkene in the presence of an acid catalyst.

15

3. The process of claim 2 wherein the at least one alkene or cycloalkene is monoethylenically unsaturated and contains from 3 to 20 carbon atoms.

20

4. The process of claim 3 wherein at least one alkene or cycloalkene is selected from the group consisting of propylene, butene, pentene, hexene, cyclopentene, and cyclohexene.

25

5. The process of claim 2 wherein the acid catalyst is selected from the group consisting of aluminum chloride, trifluoromethanesulfonic acid, tosylic acid,
5 phosphotungstic acid, silicotungstic acid, phosphomolybdic acid, zirconium triflate, aluminum triflate, polymeric perfluorinated sulfonic acid and polymeric sulfonic acid.

10 6. The process of claim 5 wherein the acid catalyst is aluminum chloride, phosphotungstic acid, or phosphomolybdic acid.

15 7. The process of claim 6 wherein the acid catalyst is phosphotungstic acid.

8. The process of claim 2 wherein the contacting is done in the presence of at least one solvent selected from the group consisting of nitromethane, methylene
20 chloride, dichloroethane, chlorobenzene, dichlorobenzene, and nitrobenzene.

9. The process of claim 2 wherein the contacting is done at a temperature between 20°C and 220°C.
25

10. The process of claim 9 wherein the temperature is between 90°C and 180°C and wherein the 5,5',6,6',7,7',8,8'-octahydro-2,2'-binaphthol is contacted with a mono- or 1,2-disubstituted alkene.
30

11. The process of claim 9 wherein the temperature is between 40°C and 90°C and wherein the 5,5',6,6',7,7',8,8'-octahydro-2,2'-binaphthol is contacted with at least one alkene selected from the
35 group consisting of 1,1-disubstituted alkene, tri-

substituted alkene, tetra-substituted alkene or aryl-substituted alkene.

5 12. A process for making 3-alkylated-
5,5',6,6',7,7',8,8'-octahydro-2,2'-binaphthol and/or
3,3'-dialkylated-5,5',6,6',7,7',8,8'-octahydro-2,2'-
binaphthol, comprising contacting 5,5',6,6',7,7',8,8'-
octahydro-2,2'-binaphthol with a benzyl halide or
10 tertiary alkyl halide, wherein the halide is bromide or
chloride, in the presence of a Lewis acid catalyst.

13. The process of claim 12 wherein the Lewis acid catalyst is selected from the group consisting of
15 aluminum chloride, zinc chloride, boron trichloride,
 SnCl_4 , SbCl_5 , and ZrCl_4 .

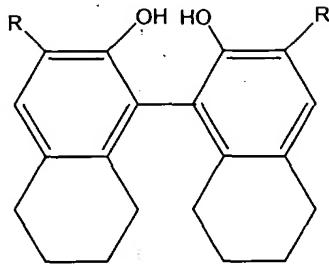
14. The process of claim 13 wherein the Lewis acid catalyst is zinc chloride.

20 15. A process for making 3-alkylated-
5,5',6,6',7,7',8,8'-octahydro-2,2'-binaphthol and/or
3,3'-dialkylated-5,5',6,6',7,7',8,8'-octahydro-2,2'-
binaphthol, comprising contacting 5,5',6,6',7,7',8,8'-
25 octahydro-2,2'-binaphthol with an alkyl sulfonate,
alkyl triflate, alkyl p-toluenesulfonate, or alkyl
benzenesulfonate, in the presence of an acid catalyst
selected from the group consisting of aluminum
chloride, tosylic acid, phosphotungstic acid,
30 silicotungstic acid, phosphomolybdic acid,
trifluoromethanesulfonic acid and a rare earth metal
triflate selected from the group consisting of scandium
trifluoromethanesulfonate, ytterbium
trifluoromethanesulfonate, and lanthanum
35 trifluoromethanesulfonate.

16. The process of Claim 15 in which the alkyl sulfonate is of the formula A-SO₃-B, wherein A is C₁ to 5 C₈ alkyl, C₁ to C₈ fluorinated alkyl, C₆ to C₁₀ aryl, or C₆ to C₁₀ fluorinated aryl; and B is C₁ to C₂₀ alkyl.

17. A process for making 3-alkylated-5,5',6,6',7,7',8,8'-octahydro-2,2'-binaphthol and/or 10 3,3'-dialkylated-5,5',6,6',7,7',8,8'-octahydro-2,2'-binaphthol, comprising contacting 5,5',6,6',7,7',8,8'-octahydro-2,2'-binaphthol with a benzyl, secondary or tertiary alcohol containing from 3 to 20 carbon atoms, in the presence of an acid catalyst selected from the 15 group consisting of trifluoromethanesulfonic acid, sulfuric acid, HF, phosphoric acid, and aluminum chloride.

18. A compound of the formula 20



wherein:

R is H; and 25 R' is ethyl, C₃ to C₆ secondary, tertiary, or cyclic alkyl; or a compound of the above formula wherein R and R' are the same and are selected from the group consisting of 30 ethyl, C₃ to C₆ secondary or cyclic alkyl.

19. A compound of claim 18 wherein R and R' are the same and selected from the group consisting of ethyl, isopropyl, cyclopentyl, and cyclohexyl.